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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,620	12/16/2003	Tsutomu Yamakawa	246790US2SCONT	2638
22850	7590	04/06/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			LEE, SHUN K	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/735,620

Applicant(s)

YAMAKAWA, TSUTOMU

Examiner

Shun Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/521,901.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1203</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because of the length. Correction is required. See MPEP § 608.01(b).
3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamae *et al.* (US 4,857,737).

In regard to claim 1, Kamae *et al.* disclose a nuclear medical diagnostic apparatus, comprising:

- (a) a radiation detector (e.g., S1 in Fig. 2) in a form of a single layer including a plurality of semiconductor cells (*i.e.*, diodes; column 1, lines 51-56) that (1) are arranged in a matrix, (2) detect radiation separately, and (3) output signals representing an energy of the radiation separately (column 6, lines 6-58; column 7, lines 35-55);
- (b) a selection circuit (*i.e.*, suitable electronic circuit and computer; column 7, lines 35-41) which, in order to select, among events wherein the radiation is detected, a specific event wherein radiation derived from a radio-isotope injected into a subject is detected (column 1, lines 21-40) and a total energy of not less than two respective signals substantially simultaneously (*i.e.*, chronological order is not directly detected since it is extremely difficult to determine the sequence of signals when the plurality of reactions are measured almost simultaneously; column 6, lines 51-54; column 7, lines 10-16; and column 9, lines 8-11) output from not less than two semiconductor cells falls in a predetermined energy window (column 7, lines 16-19 and 47-68);
- (c) a position calculation circuit (*i.e.*, suitable electronic circuit and computer; column 7, lines 35-41) configured (1) to select one semiconductor cell of said not less than two semiconductor cells (*i.e.*, coordinates of the *i*-th reaction point  $x_i$ ,  $y_i$ ,  $z_i$ ; column

7, line 54), and (2) to calculate an incidence position (*i.e.*, coordinates of the first reaction point  $x_1, y_1, z_1$ ; column 8, lines 1-24) based on a position of the selected one semiconductor cell;

(d) a counting circuit (15 and 16 in Fig. 7) configured to count the specific event in association with the calculated incidence position (column 8, lines 61-67); and

(e) a circuit (15 and 16 in Fig. 7) configured to generate a distribution of radio-isotope in the subject on the basis of a counting result (column 8, line 67 to column 8, line 2).

In regard to claims 2-5 which are dependent on claim 1, Kamae *et al.* also disclose (column 8, lines 1-24) that said position calculation circuit selects one semiconductor cell (*i.e.*, coordinates of the  $i$ -th reaction point  $x_i, y_i, z_i$ ; column 7, line 54) from said not less than two semiconductor cells on the basis of an energy (*e.g.*, a minimum energy or a maximum energy depending on the Eq. in column 8) of the not less than two signals and the locations (*e.g.*, a first area and a second area) of said not less than two semiconductor cells.

In regard to claim 7, the method steps are implicit for the apparatus of Kamae *et al.* since the structure is the same as the applicant's apparatus of claim 1.

In regard to claim 8 (which is dependent on claim 1) and claim 9 (which is dependent on claim 7), Kamae *et al.* also disclose (column 8, lines 1-24) that the position calculation circuit is configured to calculate the incidence position as a central position (*i.e.*, coordinates of the  $i$ -th reaction point  $x_i, y_i, z_i$ ; column 7, line 54) of the selected one semiconductor cell.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamae *et al.* (US 4,857,737) in view of DiFilippo *et al.* (US 5,793,045).

In regard to claim 6 which is dependent on claim 1, the apparatus of Kamae *et al.* lacks that said selection circuit is configured to calculate time differences between a signal output from one of said plurality of semiconductor cells and signals output from remaining cells of said plurality of semiconductor cells. DiFilippo *et al.* teach an internal coincidence circuit configured to determine a time difference among a plurality of signals output from said radiation detector in order determine if signals occur within a predetermined time interval (column 5, lines 33-44). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to provide an internal coincidence circuit in the apparatus of Kamae *et al.*, in order to determine if signals occur within a predetermined time interval as taught by DiFilippo *et al.*

***Conclusion***


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (571) 272-2439. The examiner can normally be reached on Tuesday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SL

  
CONSTANTINE HANNAHER  
PRIMARY EXAMINER  
GROUP ART UNIT 2878